UNITREX® Unfilled PEEK

Polyetheretherketone

Nytef Plastics, Ltd.

Message:

Unitrex PEEK is a semi-crystalline high temperature thermoplastic that offers design engineers a truly unique combination of exceptional performance characteristics. When compared with other engineering polymers, this material ranks as the best or nearly the best in every performance category. Unitrex PEEK has a relative thermal index of 480°F and has a UL 94 flammability rating of V-0, with very low levels of smoke generation and toxic gas emission. Additionally, this material exhibits excellent electrical properties, which remain stable over a wide range of both temperatures and frequencies.
Unitrex PEEK is chemically resistant to a wide range of organic and inorganic liquids and is insoluble in all common solvents. In addition, it is unaffected by steam and hot water and has a very low moisture absorption rate. This material offers superior dimensional stability and machines easily. While unfilled Unitrex PEEK offers good wear resistance, Unitrex L has been reinforced with graphite and PTFE to provide an ideal combination of low friction and enhanced wear. For applications that require improved strength and stiffness, a 30% glass fiber filled grade is available (Unitrex Rg-30). Unfilled Unitrex PEEK stock shapes are light beige in color and are available from Nytef Plastics in a full range of heavy gauge rod, plate and tubular bar sizes.
PRODUCT ATTRIBUTES
480°F relative thermal index temperature
Excellent strength, rigidity and toughness, even at elevated temperatures
Chemically resistant to all common solvents
Low moisture absorption
Superior electrical properties
Exceptional dimensional stability
Rated UL V-0 with low smoke and toxic gas emissions
Easily machined and fabricated
FDA compliant
UNITREX Rg
30% Glass fiber filled grade for improved strength and stiffness
UNITREX L
Bearing and wear grade offers lower coefficient of friction and improved wear resistance
INDUSTRIES
Medical and pharmaceutical
Aircraft and aerospace
Fluid handling
Electrical and electronics manufacturing
Automotive and transportation
Petroleum industry
APPLICATIONS
Medical instruments
Analytical instrumentation
Semiconductor wafer handling components
Compressor components and seals
Pump wear rings
Bearings and bushings

General Information	
Features	Food Contact Acceptable
	Good Chemical Resistance
	Good Dimensional Stability
	Good Electrical Properties
	Good Toughness
	High Rigidity
	High Strength
	Low Moisture Absorption
	Low Smoke Emission

	Low Toxicity
	Machinable
	Semi Crystalline
Uses	Automotive Applications
	Bearings
	Bushings
	Electrical/Electronic Applications
	Fluid Handling
	Medical Devices
	Medical/Healthcare Applications
	Pharmaceuticals
	Pump Parts
	Seals
	Semiconductor Molding Compounds
Agency Ratings	FDA Unspecified Rating
	USDA Unspecified Approval
Appearance	Beige
Forms	Preformed Parts
	Rod

Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.32	g/cm³	ASTM D792
Water Absorption			ASTM D570
24 hr	0.20	%	
Saturation	0.50	%	
Hardness	**Nominal Value**	**Unit**	**Test Method**
Rockwell Hardness			ASTM D785
M-Scale	99		
R-Scale	126		
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Modulus	4270	MPa	ASTM D638
Tensile Strength (Yield)	96.5	MPa	ASTM D638
Tensile Elongation (Break)	60	%	ASTM D638
Flexural Modulus	4140	MPa	ASTM D790
Flexural Strength	172	MPa	ASTM D790
Compressive Strength	118	MPa	ASTM D695
Coefficient of Friction	0.58		Internal Method
Impact	**Nominal Value**	**Unit**	**Test Method**
Notched Izod Impact	64	J/m	ASTM D256

Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load (1.8 MPa, Unannealed)	160	°C	ASTM D648
Peak Melting Temperature	340	°C	ASTM D3418
CLTE - Flow	4.7E-5	cm/cm/°C	ASTM D696
RTI Elec	249	°C	UL 746
RTI Imp	249	°C	UL 746
RTI Str	249	°C	UL 746
Electrical	**Nominal Value**	**Unit**	**Test Method**
Volume Resistivity	> 1.0E+16	ohms·cm	ASTM D257
Dielectric Strength [1]	19	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
60 Hz	3.50		
1 MHz	3.20		
Dissipation Factor (60 Hz)	3.0E-3		ASTM D150
Flammability	**Nominal Value**	**Unit**	**Test Method**
Flame Rating (3.18 mm)	V-0		UL 94
NOTE			
1.	Method A (Short-Time)		

Recommended distributors for this material

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